

Frequency of Severe Fire Weather

Description of Severe Weather Analysis

Severe fire weather is defined using the Fire Weather Index (FWI) developed by the USDA Forest Service Riverside Fire Lab. The FWI combines air temperature, relative humidity, and wind speed into a one number score. The FWI gives wildland fire managers an index that indicates relative changes in fire behavior due to the weather (fuel and topography conditions are not included in the calculation). Severe fire weather occurs when the FWI, calculated from the hourly weather measurement, exceeds a predetermined threshold. The threshold FWI is derived from average bad fire weather of (approximately) 95° F, 20% relative humidity, and a 7 mph eye-level wind speed. Frequency of Severe Fire Weather is defined as the percent of time during the budgeted fire season that the weather station records severe fire weather. Individual weather stations are ranked as low, medium, or high frequency of severe fire weather. This ranking can then be applied to the area on the ground represented by the weather station. Because of the incredible surge in housing developments in the unit some of our weather stations have been surrounded by houses, decreasing their usefulness as a fire weather reporting station. The ECC, Fire Prevention, and Volunteers in Prevention staff are in the process of moving one station, Livermore, and placing a new station in the Altamont Pass in a cooperative project with the wind generator consortium



Severe Weather Analysis Parameters

FWI CUTOFF	START LOW RANK	START MED RANK	START HIGH RANK
29.725	0%	5%	20%

STATION	OWNER	LAT	LON	ELEV	WXSCORE %	WXRANK
Diablo Grande	CDF	37.320	121.290	1850	0.56	Low
Livermore	CDF	37.710	121.810	800	12.56	Med
Los Banos	CDF	37.050	121.030	350	6.51	Med
Black Diamond	EBRP	37.950	121.880	1600	11.89	Med
Briones	EBRP	37.930	121.110	1450	2.50	Low
Calaveras Road	EBRP	37.440	121.770	1230	4.18	Low
Las Trampas	EBRP	37.830	122.060	1760	11.74	Med
Rose Peak	EBRP	37.500	121.730	3060	1.22	Low
Mallory Ridge	ConWater	37.810	121.770	2040	2.94	Low
Oakland North	Oakland Fire	37.870	122.210	1300	3.75	Low

Weather Score

The percent of time a weather station is experiencing severe weather. Non-fire season data is thrown out at this point. The assumption is that during winter the fuels aren't ready to burn regardless of the weather.

Weather Rank

The Wx SCORE intensity rating is lumped into three categories to create a severe fire weather frequency ranking